

1653



1600

ENTERED

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/693,205A

DATE: 11/06/2002 9:6

TIME: 14:46:21

Input Set : A:\2825.1021-003 SUB SEQ LIST.TXT  
 Output Set: N:\CRF4\11062002\I693205A.raw

4 <110> APPLICANT: Hudson, Thomas J.  
 5       Engert, James C.  
 6       Richter, Andrea  
 8 <120> TITLE OF INVENTION: IDENTIFICATION OF ARSACS MUTATIONS AND  
 9       METHODS OF USE THEREFOR  
 12 <130> FILE REFERENCE: 2825.1021-003  
 14 <140> CURRENT APPLICATION NUMBER: US 09/693,205A  
 15 <141> CURRENT FILING DATE: 2000-10-20  
 17 <150> PRIOR APPLICATION NUMBER: US 60/160,588  
 18 <151> PRIOR FILING DATE: 1999-10-20  
 20 <160> NUMBER OF SEQ ID NOS: 73  
 22 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
 24 <210> SEQ ID NO: 1  
 25 <211> LENGTH: 12793  
 26 <212> TYPE: DNA  
 27 <213> ORGANISM: Homo sapiens  
 29 <400> SEQUENCE: 1  
 30 atgatttaca ggaagaccat gtactcagct gcagcttcta aatccagaac gatttgcacg 60  
 31 tcttatcaag gaagtaatga atacattctg gcctggcaga gaattgattt ttcaatggta 120  
 32 tccattttgat gaaaacagaa atcaccatc tgtttcatgg cttaaagatgg tttggaaaaaa 180  
 33 tctttatata catttttcag aggatttgc ttatatttgc gagatgccac ttatccccag 240  
 34 aactatacta gaggaaggc agacatgtgt ggaactcatt agactcagga ttccatcggt 300  
 35 agtcattttt gacgatgaat ctgaaggcaca gcttccagaa ttttttagcag acattgtaca 360  
 36 aaaacttggaa gggtttgc ttaaaaaattt agatgcattt atacaacatc cgcttattaa 420  
 37 aaaatataattt catttacccat taccaagtgc tgtttgcag ataatggaga agatgccatt 480  
 38 gcagaaaattt tgtaatcaaa taacttcgct acttccaaca cacaagatg ccctgaggaa 540  
 39 gttcttggct agttttaaccg atagcagtga gaaagagaaa agaattttt aagaatttggc 600  
 40 aatattcaag cgcatattacc attttcttgc tcagggatt tccctttata caaaatttggaa 660  
 41 aggttgtaaa gtcttacacc atactgcac actccacgc gatctgcgc tttcttatttc 720  
 42 agtaatagac agtagtgatg aagctactat tcgtctggca aacatgttga aaatagaaca 780  
 43 gttaaagacc actagctgct taaagcttgc tttaaaagat attgtttttt catttttttc 840  
 44 acatgaagag gtaacacacgc ttatgttgc ggtcccttgc aatctatctt ctctttttttt 900  
 45 tgagaatcca aatgtgcattt agtggtaac accataaaaa ttcattccaga tattcacagga 960  
 46 acagatggta tcagctggc aacttttgc ccctgatata gaagttactaa aggatctttt 1020  
 47 ttgttaatggaa gaagggaaacctt atttcccacc ctcagttttt acctcaccatc atatttttca 1080  
 48 ctctttaaga cagattttttt taaaaaaccgaa agccagtctc aaagaaaaagg atgttgcac 1140  
 49 agtggcaaaaaaaa aatgttgcattt ctttacaggtt cgggtttttt cctgtatcaag atgttgcac 1200  
 50 gaagaaaagcc aaaaaccctt tactggttttt aaataagaat cacacactgt tgcaatcatc 1260  
 51 tgaaggaaag atgacatttgc agaaaaataaa atgggttccca gcctgcaagg aaaggccctcc 1320  
 52 aaattatcca ggcttcttgg tctggaaagg agatctctgtt aatctctgtt caccaccaga 1380  
 53 tatgtgtatg ttaggcatttgc caatttctcat tggctctca cttcctcttgc ttgaaagtat 1440  
 54 ccatgttaaac ctggaaaaag cattagggat cttcacaaaaa cctagccttgc gtgcgttgc 1500  
 55 aaaacactttt aaaaattttttt ttgattttttt acctttttttt atgttgcac 1560

RECEIVED

NOV 1 8 2002

TECH CENTER 1000/2000

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/693,205A

DATE: 11/06/2002  
TIME: 14:46:21

Input Set : A:\2825.1021-003 SUB SEQ LIST.TXT  
Output Set: N:\CRF4\11062002\I693205A.raw

56 cttatcaattc cagcatattt tgcttgagat ttacgatttc atgcataatgc atctaaatga 1620  
57 aggaaagat tcttttagag ccttaaaatt tccatgggtt tggactggca aaaagtttg 1680  
58 tccacttgcc caggctgtga ttaaaccat ccatgatctt gacccatc cttatggca 1740  
59 taatgtacct aaaaccatgg caaaattcca ccaactattt aaggtctgtt gttcaataga 1800  
60 ggagttgaca tcagatcata ttccatggt tattcagaag atatatctca aaagtgcac 1860  
61 agatctcagt gaacaagaaa gcaaacaaaa tcttcattt atgttgaata ttatcagatg 1920  
62 gctgtatagc aatcagattc cagcaagccc caacacacca gttccatatac atcatagcaa 1980  
63 aaatccttct aaacttatca tgaagccat tcacgaatgc tgattttgtt acatcaaagt 2040  
64 tcatgacatt aatgacttac ttgaagattc tggaaacca atcattttgg tgcataaggg 2100  
65 catacccatg aaaactgcag aatggctaa agttccatgc cttagttacaa gactgataaa 2160  
66 tcctgaaaac atgggatttg agcagtcagg acaaagagag ccacttactg taagaattaa 2220  
67 aaatattctg gaagaataacc cttcagtgtc agatattttt aaagaactac ttcaaaacgc 2280  
68 tcatgatgca aatgcaacag aatgcagttt cttgattgtt atgagaagaa atatggacat 2340  
69 aagagagaat ctcctagacc cagggatggc agcttgtcat gacccgtt tgggtcatt 2400  
70 caacaattct caattctcag attcagattt tgtaacata actaggtagt gagaatctt 2460  
71 aaaaagggggaa gaagttgaca aagttggaaa atttggctt ggatttaattt ctgtgtacca 2520  
72 tattactgac attccatca ttatgatcgg ggaattcatg ataattttcg atccaaacat 2580  
73 aaatcatatc agtaaacaca taaaagacaa atccaaatctt gggatcaaaa ttaattggag 2640  
74 taaacaacag aaaagactta gaaaatttcc taatcagttc aaaccattt tagatgtatt 2700  
75 tggctgtcag ttaccttga ctgtagaagc accttacagc tataatggaa ccctttccg 2760  
76 actgtcctttt agaactcaac aggaagcaaa agtggatgaa gtttagtagt cgtgtacaa 2820  
77 tacagcagat atttattctc ttgtggatgtt atttagtctc tggacaca ggcttatcat 2880  
78 tttcactcag agtggaaatg caatgtattt gaagtacttgg aaaatttgggaa aaccaaccc 2940  
79 cagtttagca caagatacag taataattaa aaaaaaaatcc tgctcttcca aagcattgaa 3000  
80 cacacctgtc ttaagtgttt taaaagagggc tgcttaagctc atgaagactt gcagcagcag 3060  
81 taataaaaag cttcccaatgtt atgaacccaaa gtcataatgc attcttcaga tcacagtgg 3120  
82 agaatttcac catgtttca gaaggattgc tgatttacag tcgcccactt ttagagggtcc 3180  
83 agatgatgac ccagctgtc tctttgaaat ggctaagtctt gccaatcaa aaaagccatc 3240  
84 agatggatgtt tcacagaaaaa ctagtagatg taccacgtgg cttctgtgtt ctgtcatgaa 3300  
85 cacaggagag gctctgaatg ttccctgtgg tgagatgtgg agaagacttag gactgggtcc 3360  
86 atgtggggca gtaggatgttcc agctgtcaga aatccaggac cagaagatggc cagtggaaacc 3420  
87 acacattggc gaggtgtttt gctatttacc ttacatgatcataaaa acacaggt tgccagttca 3480  
88 tatcaatggg tgctttgttcc ttacatcaaa tagggaaatggaaa cagataaaaa 3540  
89 aggacgatgg aataccacgt tcatgagaca tggtttttgtt aaagcttact tacaggtact 3600  
90 gagtgtctt cgggacatgg ccactatgtgg ggagctaattt gattataactt actatgcagt 3660  
91 atggcccgat cctgattttt ttcatgatgtt tttttctgtt atttggccaaag gattttatgt 3720  
92 agatatacgat catggaaaaag gggaaagaaact gacccaaatgc ttctctgtatg gatctactt 3780  
93 ggtttccatg aagaacgtaa gattttctaga tgactctata cttaaaagaa gagatgttgg 3840  
94 ttccatgttcc ttcaagatattttt gatggaaata cctcaagaag actgggtccca aaaacctttt 3900  
95 tgctgttggaa cttcccttctt cgtaaaaattt aggattgtt gaaatgtggctt gcaaaacatg 3960  
96 actacttggaa aacacattttt cagagaaaaca gttttttctt gaaatgtttt ttccaaatat 4020  
97 tcaagaaaattt gaagcagaac tttagatc tttatgatc tttgttctaa atgaaaaatgtt 4080  
98 tgatgatgttcc tcgggagttc ttctgtgttac tccatgttattt cttgttccct tggagggggca 4140  
99 tccttgggtt ttgccccatcaaa gattgtatcca ccccaagggc cgagttgcac agttatttga 4200  
100 tattaaagat gggagattcc cttatgggtt tactcaggat tatctcaatc ctattttttt 4260  
101 gattaaacta gttcagtttgc gatggcaaa agatgatattt ttatggatg atatgcata 4320  
102 acgtgcagtg tcagtagctg aaatataataa aagtgtatcat gttgctgtcat gcctaagaag 4380  
103 tagtatcttta ttgatgttca tcgatgagaaa actaaaaata agggatccta gagcaaaaggaa 4440  
104 ttttgcgtcaaa aaatataatcaaa caatccgcctt cttccatattt ctgacaaaac cagcagggttt 4500

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/693,205A

DATE: 11/06/2002  
TIME: 14:46:21

Input Set : A:\2825.1021-003 SUB SEQ LIST.TXT  
Output Set: N:\CRF4\11062002\I693205A.raw

105 ttctttggac tggaaaaggca acagtttaa gcctgaaacc atgtttgcag caactgacct 4560  
 106 ttatacagct gaacatcaag atatagtttg tcttttgc当地 ccaattctaa atgaaaattc 4620  
 107 ccattcttt agaggttgtg gttcagtgtc attggctgtt aaagagttt tgggattact 4680  
 108 caagaagcca acagttgatc tggttataaa ccaattgaaa gaagtagcaa aatcagtga 4740  
 109 tcatggaaatt acactgtacc aggagaatatt caccatgtc tgctacaat accttcatga 4800  
 110 agccttgatg caaaatgaaa tcactaagat gtcaatttatt gataagttaa aaccctttag 4860  
 111 cttcattcta gttgagaatg catatgttga ctcagaaaag gtttctttc attttaaattt 4920  
 112 tgaggcggca ccatacctt atcagttgcc taataagtat aaaaataatt tccgcgaact 4980  
 113 ttttgaacc gtgggtgtga ggcagtcatg cactgttga gattttgctc ttgttttgg 5040  
 114 atctattgtat caagaaagag gaacaaagca aataacagaa gagaattttc agctttgccg 5100  
 115 acgaataatc agtgaaggaa tatggagttt cattagagaa aagaacaag aattttgtga 5160  
 116 gaaaaattat ggcaagatatt tattgcccaga tactaatctt atgcattctcc ctgctaaatc 5220  
 117 gttatgtac aatgattgcc cttggataaa agttaaggat accactgtaa aatattgtca 5280  
 118 tgctgacata cccagggaaag tagcagtaaa actaggagca gtcccaaagc gacacaaagc 5340  
 119 ctttagaaaga tatgcatcca atgtctgtt tacaacactt ggcacagaat ttgggcagaa 5400  
 120 agaaaaattt accagcagaa ttaagagcat ccttaatgca tattcattctg aaaaaggaaat 5460  
 121 gttgaaagag cttcttcaaa atgctgatga tgcaaggcg acagaaatct gtttgtgtt 5520  
 122 tgatcctaga cagcatccag ttgatagaat atttgcattt aagtggggcc cattgcaagg 5580  
 123 gcccggactt tgggtgtaca acaaccaggcc atttacagaa gatgtatgtt gaggaaattca 5640  
 124 gaatcttggaa aaaggcacga aagaggggaaa tccttataaa actggacagt atgaaatagg 5700  
 125 attcaattctt gtgtatcata tcacagactg cccatctttt atttctggca atgacatctt 5760  
 126 gtgtatttt gatcctcatg ccagatatgc accaggggcc acatccatgatgtt gtcggacg 5820  
 127 catgtttaga gatttggatg cagattttg gacacagttc tcagatgtt tggatcttta 5880  
 128 tctgggaacc cattttaaac tggataattt cacaatgttca agatttcctc ttgcataatgc 5940  
 129 agaaatggca aaagtttgcg aaatttgc当地 tggtccagca tcagacagaa tggccagaa 6000  
 130 tcttttggac aaactgc当地 cagatggggc agaacttcta atgtttcttta atcacatgg 6060  
 131 aaaaatttctt atttgc当地 tagataagag tactggagct ctaaatgtgc tggatcgtt 6120  
 132 aaagggcaaa atcacagatg gagacagatt gaaaaggaaat caatttcatg catctgtat 6180  
 133 tgatagtgtt actaaaaaga ggcagctcaa agacatacca gttcaacaaa taacctatac 6240  
 134 tatggatact gaggactctg aaggaaatct tactacgtgg ctaatttgc当地 atagatcagg 6300  
 135 ctttcaagt atggagaaat tatctaaaatg tgc当地 atgc当地 gctcacaaga accaagat 6360  
 136 tactcttttcc acgtgggtg gagtagctgc ctgcattact cacaactata aaaaacccca 6420  
 137 tagggccttc tggttttgc ctctttctt ggagactggg ctgc当地 atgtgaatgg 6480  
 138 ccactttgca ctggatttc当地 ccagaaggaa cctgtggcgt gatgataatg gagttgggtt 6540  
 139 tcgaagtgc当地 tggaaaacaat gtttgc当地 agcattataa gctcctgc当地 atgttgc当地 6600 ←  
 140 gctaatacag taaaacttccat ggttgc当地 tggatcgtt ccaacattat cagtttaca 6660  
 141 gaacacccctt attcatgttgc当地 taaaaggacac ttttgc当地 ttttccc当地 6720  
 142 taaccgtctt gatctacagc cagatttata ttgtctgttgc当地 aagcactt acaattgc当地 6780  
 143 tcacgaagac atgaaacgtc ttgttgc当地 ttttgc当地 ccaaatattt atggctctga 6840  
 144 ctgc当地 ctgc当地 gcatgttataa ttacttgc当地 caatatgtctt acttcttataa aaactagacc 6900  
 145 attttttgc当地 aatttactac aggttgc当地 acaacacctt aaaaatgc当地 attataat 6960  
 146 caccacacgc aaaaacgttgc当地 cagagaatgt ctataggctg aaacatctcc ttttagaaat 7020  
 147 tggtttcaac ttgggttataa actgttgc当地 aactgtctt ctttaccact gtcttgc当地 7080  
 148 tgc当地 agatgttgc当地 ttgttgc当地 ctttgc当地 agatctttt taatgacatt 7140  
 149 ttccctctccat gacactaattt ggc当地 attttgc当地 gatgttgc当地 tggatcgttgc当地 7200  
 150 tctaaaactt ttcatgttgc当地 taaaacttccat ggttgc当地 tggatcgttgc当地 7260  
 151 aaatgagattt gaaatgttgc当地 gatttgc当地 tctcatcaca ctggatcgttgc当地 7320  
 152 ttttgc当地 aaacgacccaaat gtttgc当地 aacatatcatt gatgttgc当地 catccgc当地 7380  
 153 agacttgc当地 atgatcgttgc当地 ttttgc当地 atatgttgc当地 actgttgc当地 7440

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/693,205A

DATE: 11/06/2002  
TIME: 14:46:21

Input Set : A:\2825.1021-003 SUB SEQ LIST.TXT  
Output Set: N:\CRF4\11062002\I693205A.raw

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/693,205A

DATE: 11/06/2002  
TIME: 14:46:21

Input Set : A:\2825.1021-003 SUB SEQ LIST.TXT  
Output Set: N:\CRF4\11062002\I693205A.raw

RAW SEQUENCE LISTING ERROR SUMMARY DATE: 11/06/2002  
PATENT APPLICATION: US/09/693,205A TIME: 14:46:22

Input Set : A:\2825.1021-003 SUB SEQ LIST.TXT  
Output Set: N:\CRF4\11062002\I693205A.raw

**Please Note:**

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:20; N Pos. 5

VERIFICATION SUMMARY  
PATENT APPLICATION: US/09/693,205A

DATE: 11/06/2002  
TIME: 14:46:22

Input Set : A:\2825.1021-003 SUB SEQ LIST.TXT  
Output Set: N:\CRF4\11062002\I693205A.raw

L:1423 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (5) SEQUENCE:  
L:1428 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (6) SEQUENCE:  
L:4228 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:0  
L:4765 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (68) SEQUENCE:  
L:4770 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (69) SEQUENCE:  
L:4775 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (70) SEQUENCE:  
L:4780 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (71) SEQUENCE: